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Title: Improving probabilities for seasonal prediction based on the North American Multi Model Ensemble(NMME)

In late 2012 CPC started real-time NMME seasonal probability forecasts for surface temperature, precipitation, and SST; although these forecasts are labeled “experimental”, they have already been heavily relied on by CPC forecasters. They have been provided, as a function of forecast lead, variable and location, with probabilities specified by tercile category as calculated from hindcasts, using the count method to assign members to tercile categories in real-time mode. This is the baseline approach that we seek to improve.

In the baseline approach, forecasts are already corrected for bias in mean and standard deviation, which, as such, improves their skill and probabilistic reliability. Further Improvements are expected due to local calibrations of the probability forecasts, consisting basically of managing the histograms based on the count method (the probability forecast distributions). For example, too-bold forecasts can be damped when the probabilistic skill does not warrant the degree of deviation of the probability from climatology (0.333). Increases in boldness of forecast probabilities occasionally may also occur.

One method for calibrating the local probabilities will be considered particularly: Damping of probability anomalies as per a new verification measure to be known as the probability anomaly correlation (PAC). This should yield better reliability and resolution and more generally an improved minimized Brier Score. Some results of this approach will be presented.